

CLAIMS

What is claimed is:

1. A mechanical spacer for use in a slitting operation, the mechanical spacer comprising:

a first housing plate;

a second housing plate; and

a plurality of shafts interconnecting the first and second housing plates, the shafts each having an equal length such that the first and second housing plates are fixedly held in a parallel relationship relative one another.

2. The mechanical spacer of claim 1, wherein the first and second housing plates include a generally circular shape having an aperture coaxially formed therethrough.

3. The mechanical spacer of claim 2, wherein the aperture is for receiving an arbor for rotation therewith.

4. The mechanical spacer of claim 3, wherein the aperture includes a recess formed through the first and second housing plates for interaction with a key formed on the arbor to prevent relative rotation therebetween.

5. The mechanical spacer of claim 3, wherein the aperture includes a key interconnecting the first and second housing plates for interaction with a recess formed on the arbor to prevent relative rotation therebetween.

6. The mechanical spacer of claim 4, wherein the interaction of the key and the recess serves to align multiple mechanical spacers along the arbor such that the shafts of the individual spacers are co-aligned.

7. The mechanical spacer of claim 5, wherein the interaction of the key and the recess serves to align multiple mechanical spacers along the arbor such that the shafts of the individual spacers are co-aligned.

8. A slitter tool comprising:

an upper arbor defining a first longitudinal axis and including a first engagement element;

a lower arbor defining a second longitudinal axis and including a second engagement element; and

at least one mechanical spacer matingly received by each of the upper and lower arbors, the mechanical spacers comprising:

a first housing plate and a second housing plate, the first and second housing plates defining a third engagement element; and

a plurality of shafts interconnecting the first and second housing plates, the shafts each having an equal length such that the first and second housing plates are fixedly held in a parallel relationship relative one another.

9. The slitter tool of claim 8, wherein the first engagement element includes a slot formed in the upper arbor along the first longitudinal axis.

10. The slitter tool of claim 8, wherein the second engagement element includes a slot formed in the lower arbor along the second longitudinal axis.

11. The slitter tool of claim 8, wherein the first engagement element includes a key extending from an outer surface of the upper arbor, the key extending the length of the upper arbor along the first longitudinal axis.

12. The slitter tool of claim 8, wherein the second engagement element includes a key extending from an outer surface of the lower arbor, the key extending the length of the lower arbor along the second longitudinal axis.

13. The slitter tool of claim 8, wherein the first and second housing plates include a generally circular shape having an aperture coaxially formed therethrough.

14. The slitter tool of claim 13, wherein the third engagement element includes a recess formed through the first and second housing plates for interaction with the first and second engagement elements of the upper and lower arbors to prevent relative rotation therebetween.

15. The slitter tool of claim 13, wherein the third engagement element comprises a key extending from an inner diameter of the aperture, the key operable to be matingly received by the first and second engagement elements of the upper and lower arbors to prevent relative rotation therebetween.

16. The slitter tool of claim 13, wherein the upper arbor is adapted to matingly receive the aperture of the first and second housing plates of a first mechanical spacer and the lower arbor is adapted to matingly receive the aperture of the first and second housing plates of a second mechanical spacer.

17. The slitter tool of claim 8, wherein the mechanical spacers define a plurality of paths between the upper and lower arbors.

18. The slitter tool of claim 8, wherein each of the upper and lower arbors include a plurality of knives, the knives disposed along each of the upper and lower arbors and spaced apart by the mechanical spacers at a predetermined distance.

19. A method of slitting metal comprising:

positioning an upper arbor in proximity to a lower arbor to define a passageway therebetween;

inserting a first set of cutting knives onto each of the upper and lower arbors, the knives extending into the passageway between the upper and lower arbors;

positioning a first mechanical spacer proximate the first set of cutting knives on both the upper and lower arbors, the mechanical spacers each including a first and second housing plate joined by a plurality of shafts;

positioning a second set of cutting knives proximate the first mechanical spacer on both the upper and lower arbors to define a distance between the first and second cutting knives substantially equivalent to a width of each mechanical spacer;

rotating the upper and lower arbors such that each of the first and second knives and mechanical spacers rotate therewith;

passing a sheet of metal through the passageway for interaction with the knives such that the metal is cut into strips having a width substantially equivalent to that of the mechanical spacers.

20. The method of slitting metal of claim 19, further comprising the step of positing a second mechanical spacer proximate the first mechanical spacer on at least one of the upper and lower arbors to achieve a desired slit thickness.

21. The method of slitting metal of claim 20, wherein the mechanical spacers each include a keyed portion for mating engagement with a keyed portion of each of the upper and lower arbors.

22. The method of slitting metal of claim 21, wherein the keyed section is operable to coaxially align the first and second mechanical spacers relative to the upper and lower arbors.

23. The method of slitting metal according to claim 21, wherein the keyed section coaxially aligns each of the individual shafts of the first and mechanical spacers.